

B141. Tandem common equipment intercept factor

Definition

The multiplier of the common equipment investment input that gives the common equipment cost for the smallest tandem switch.

Default

0.50

B142. Entrance Facility Distance from Serving Wire Center & IXC POP

Definition

Average length of trunks connecting an IXC with the wire center that serves it.

Default

0.5 miles

B143. STP link capacity

Definition

The maximum number of signaling links that can be terminated on a given STP pair.

Default Value

720

B144. STP maximum fill

Definition

The fraction of maximum links, as stated by the STP link capacity input, that the model assumes can be utilized before it adds another STP pair.

Default Value

0.8

B145. STP maximum investment, per pair

Definition

The cost to purchase and install an STP pair, fully equipped for the maximum number of links.

Default Value

Maximum investment: \$5,000,000

B146. STP minimum common equipment investment, per pair

Definition

The minimum investment for a minimum-capacity STP, i.e.: the fixed investment for an STP pair that serves a minimum number of links.

Default Value

\$1,000,000

B147. Link termination, both ends

Definition

The investment required for the transmission equipment that terminates both ends of an SS7 signaling link.

Default Value

\$900.00

B148. Signaling link bit rate

Definition

The rate at which bits are transmitted over an SS7 signaling link.

Default Value

56,000 bits per second

B149. Link occupancy

Definition

The fraction of the maximum bit rate that can be sustained on an SS7 signaling link.

Default Value

0.40

B150. C link cross-section

Definition

The number of C-links in each segment connecting a mated STP pair.

Default Value

24

B151. ISUP messages per interoffice BHCA

Definition

The number of Integrated Services Digital Network User Part (ISUP) messages associated with each interoffice telephone call attempt, i.e. the messages switches send to each other over the SS7 network to

negotiate establishing a voice path.

Default Value

6

B152. ISUP message length, bytes

Definition

The average number of bytes in each ISUP (ISDN User Part) message.

Default Value

25 bytes

B153. TCAP messages per transaction

Definition

The number of Transaction Capabilities Application Part (TCAP) messages required per SCP database query. A TCAP message is a message from a switch to a database or another switch that provides the switch with additional information prior to setting up a call or completing a call.

Default Value

2

B154. TCAP message length, bytes

Definition

The average length of a TCAP message.

Default Value

100 bytes

B155. Fraction of BHCA requiring TCAP

Definition

The percentage of BHCAs that require a database query, and thus generate TCAP messages.

Default Value

0.10

B156. SCP investment per transaction per second

Definition

The investment in the Service Control Point (SCP) associated with database queries, or transactions, stated as the investment required per transaction per second. For example, an SCP required to handle 100 transactions per second would require a 2 million dollar investment, if the default of \$20,000 is assumed.

Default Value

\$20,000

B157. Investment per operator position

Definition

The investment per computer required for each operator position.

Default Value

\$6,400

B158. Maximum utilization per position, CCS

Definition

The estimated maximum number of CCS that one operator position can handle during the busy hour.

Default Value

32

B159. Operator intervention factor

Definition

The percentage of all operator-assisted calls that require operator intervention, expressed as 1 out of every N calls, where N is the value of the input. Given the default values for operator-assisted calls, this parameter means that 1/10 or 10% of the assisted calls actually require manual intervention of an operator, as opposed to *automated* operator assistance for credit card calls, etc.

Default Value

10

B160. Public Telephone equipment investment per station

Definition

The weighted average cost of a public telephone and pedestal (coin/non-coin and indoor/outdoor).

Default Value

\$760

B161. Cost of capital

Definition

The capital cost structure, including the debt/equity ratio, cost of debt, and return on equity, that make up the overall cost of capital.

Default Values

Debt percent	0.450
Cost of debt	0.077
Cost of equity	0.119
Weighted average cost of capital	0.1001

B162. Depreciation lives

Definition

The economic life of various network plant categories.

Default Value

motor vehicles	9.16
garage work equipment	11.47
other work equipment	13.22
buildings	48.99
furniture	16.56
office support equipment	11.25
company comm. Equipment	7.59
general purpose computers	6.24
digital electronic switching	16.54
operator systems	9.94
digital circuit equipment	10.09
public telephone term. Equipment	8.01
Poles	16.13
aerial cable, metallic	16.80
aerial cable, non metallic	22.11
underground cable, metallic	21.17
underground cable, non metallic	22.87
buried cable, metallic	19.86
buried cable, non metallic	24.13
intrabuilding cable, metallic	15.64
intrabuilding cable, non metallic	23.65
conduit systems	51.35

B 163. Structure Percentage Assigned to Telephone

Definition

The fraction of investment in distribution and feeder poles and trenching that is assigned to LECs. The remainder is attributed to other utilities/carriers.

Default Values

0-5	.50	.33	1.00	.50	.40	.50
5-100	.33	.33	.50	.33	.40	.50
100-200	.25	.33	.50	.25	.40	.40
200-650	.25	.33	.50	.25	.40	.33
650-850	.25	.33	.40	.25	.40	.33
850-2,550	.25	.33	.33	.25	.40	.33
2,550-5,000	.25	.33	.33	.25	.40	.33
5,000-10,000	.25	.33	.33	.25	.40	.33
10,000+	.25	.33	.33	.25	.40	.33

B164. Income tax rate

Definition

The combined federal and state income tax rate on earnings paid by a telephone company.

Default Value

39.25%

B165. Variable overhead factor

Definition

The variable component of corporate overhead costs, expressed as a fraction of the sum of all capital costs and operations expenses calculated by the model.

Default Value

10.4%

B166. Other taxes factor

Definition

Taxes paid by a telephone company in addition to federal and state income taxes.

Default Value

5%

B167. Billing/bill inquiry per line per month

Definition

The cost of bill generation and billing inquiries for end users, expressed as an amount per line per month.

Default Value

\$1.22

B168. Directory listing per line per month

Definition

The monthly cost of creating and maintaining white pages listings on a per line, per month basis.

Default Value

\$0.15

B169. Forward-looking network operations factor

Definition

The forward-looking factor applied to a specific category of expenses reported in ARMIS called Network Operations. The factor is expressed as the percentage of current ARMIS-reported Network Operations.

Default Value

50%

B170. Alternative Central office switching expense factor

Definition

The expense to investment ratio for digital switching equipment, used as an alternative to the ARMIS expense ratio, reflecting forward looking rather than embedded costs. Thus, this factor multiplies the calculated investment in digital switching in order to determine the monthly expense associated with digital switching. This value does not include software upgrades to the switch.

Default Value

2.69%

B171. Alternative circuit equipment factor

Definition

The expense to investment ratio for all circuit equipment (as categorized by LECs in their ARMIS reports), used as an alternative to the ARMIS expense ratio to reflect forward looking rather than embedded costs.

Default Value

0.0153

B172. End office traffic-sensitive fraction

Definition

The fraction of the total investment in digital switching that is assumed to be due to traffic-sensitive elements and is thus usage-sensitive. This value shows how much of the cost of an end office is associated with the line port as opposed to usage.

Default Value

70%

B173. Per-line monthly LNP cost

Definition

The estimated cost of permanent Local Number Portability (LNP), expressed on a per-line, per-month basis, including the costs of implementing and maintaining the service. This is included in the USF calculations only, not the UNE rates, because it will be included in the definition of universal service once the service is implemented.

Default Value

\$0.25

B174. Carrier-carrier customer service per line

Definition

The yearly amount of customer operations expense associated with the provision of unbundled network elements by the LECs to carriers who purchase those elements.

Default Value

\$1.69

B175. NID expense per line per year

Definition

The estimated annual NID expense on a per line basis, based on an analysis of ARMIS data modified to reflect forward looking costs. This is for the NID only, not the drop wire, which is included in the ARMIS cable and wire account.

Default Value

\$1.00/line/year

B176. DS-0/DS-1 Terminal Factor

Definition

The relative terminal investment per DS-0, between the DS-1 and DS-0 levels.

Default Value

12

B177. DS-1/DS-3 Terminal Factor

Definition

The relative investment per DS-0, between the DS-3 and DS-1 levels.

Default

10

B177a. Average Lines per Business Location

Definition

The average number of business lines per business location, used to calculate NID and drop cost.

Default

4

B178. Average trunk utilization

Definition

The 24 hour average utilization of an interoffice trunk.

Default Value

0.30

Hatfield Model Release 3.1

Automation Description and User Guide

HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

Table of Contents

1. GENERAL DESCRIPTION
2. SYSTEM REQUIREMENTS
3. INSTALLATION INSTRUCTIONS
4. RUNNING THE MODEL
5. ADJUSTING USER INPUTS AND MANAGING SCENARIOS
6. ADDITIONAL FEATURES
7. TROUBLESHOOTING

HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

1. General Description

The Hatfield Model Release 3.1 calculates the cost of unbundled network elements (UNEs), universal service funding (USF) requirements, and the cost of carrier access and interconnection through the use of a highly sophisticated costing tool. The computer program chosen to support such a complicated analysis is Microsoft Excel 7.0. The model's calculations are contained in four Excel workbooks; these workbooks include the:

1. *Distribution Module*
2. *Feeder Module*
3. *Switching and Interoffice Module*
4. *Expense Module.*

The Hatfield Model's developers and sponsors believe that a model developed in a readily understandable and ubiquitous spreadsheet program will permit detailed analysis of the Hatfield Model's calculations, algorithms, and user definable inputs. Moreover, the use of Microsoft Excel's auditing tools will allow the user to determine relationships among the Model's various inputs and outputs.

While Hatfield Model Release 3.1 remains a spreadsheet-based model, it uses two Microsoft programming languages -- Visual Basic (VB) and Visual Basic for Applications (VBA) -- and a database to integrate the Hatfield Model's four calculating modules. (See Model flowchart on the following page.) The use of programming code and macros allows the model to run with only limited user intervention as the programming code copies and pastes intermediate results and data among modules. Most importantly, the Hatfield Model no longer requires a "super-PC" to operate. Although the recommended PC is a 133 MHz Pentium with 64Mb of RAM, the Hatfield Model 3.1 will operate on less capable machines as well.

Hatfield Model Release 3.1 takes advantage of Microsoft's object oriented structure to enhance the model's speed and functionality. SQL database queries have removed the need for complex and time consuming data aggregation functions within Excel, permitting the model to calculate quickly and produce results at various levels of aggregation.

Specifically, two calculations are performed within the database. First, the database aggregates investment results from the CBG level to the Wire Center and Density Zone levels. Second, the database assigns switching and interoffice investments (which are developed on a per-line basis) to each CBG. In both cases the calculations are simple arithmetic, and can be externally verified by the user. Use of the database increases the efficiency of the model, but does not compromise its auditability.

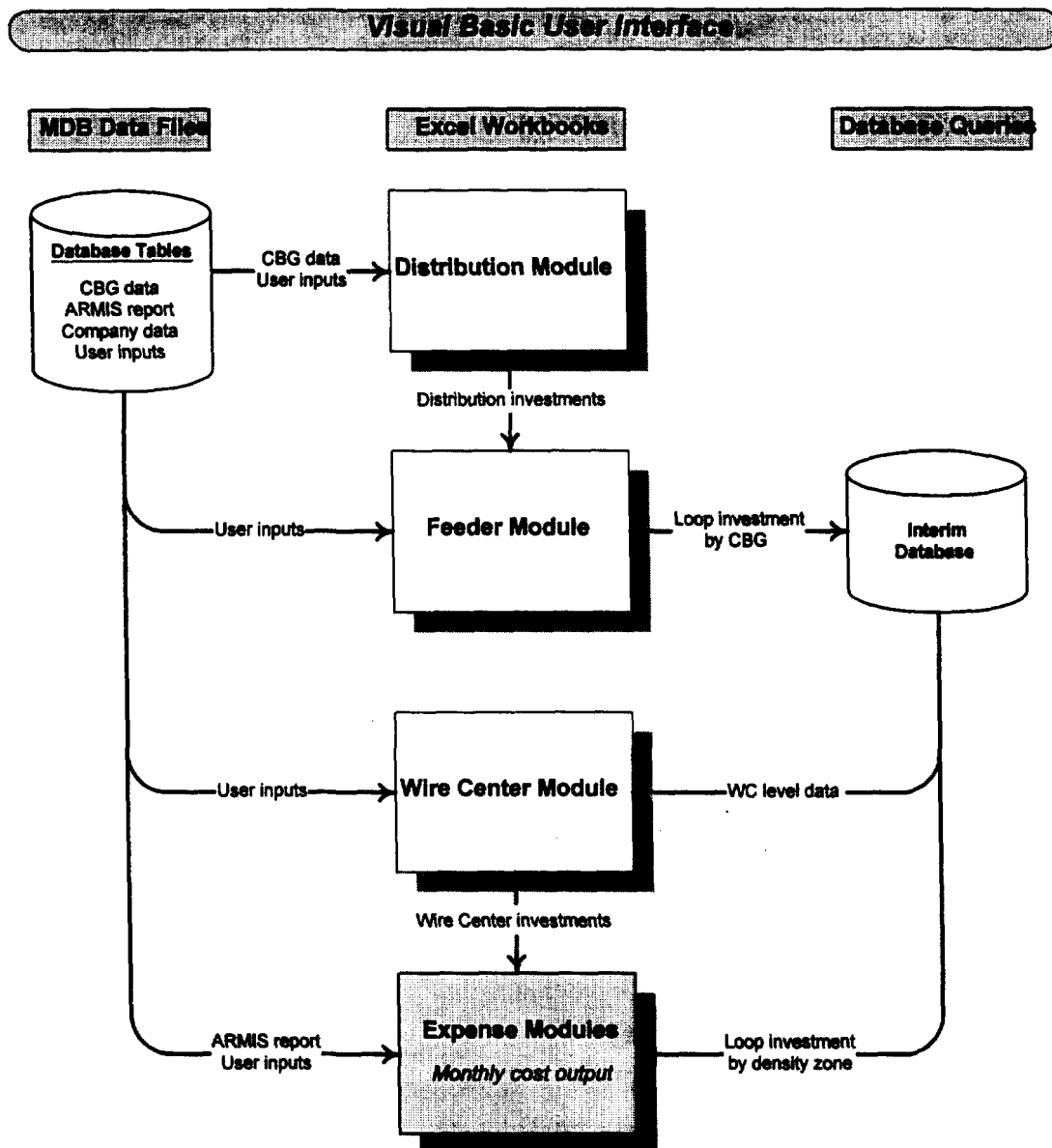
To further enhance the Model's auditability, an Excel "workfile" is generated with each run to keep track of the intermediate results of each module. Using this workfile, the user can trace the development of investment results through each of the calculating modules.

HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

HATFIELD MODEL 3.1

Module Flowchart



HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

2. System Requirements

In order to run Hatfield Model Release 3.1, your PC should meet the following requirements:

- 133 MHz Pentium processor*
- 64 megabytes of RAM*
- SVGA monitor set to 800 x 600 (or higher) display resolution
- 200 megabytes of available hard drive capacity
- Microsoft Windows NT or Windows 95* operating system
- Microsoft Office Professional 95 (preferred), or at a minimum, Microsoft Excel Version 7.0

The items marked with an asterisk (*) are recommended requirements, and should be followed if the Model is to be used for large companies in large states (i.e., California, New York, or Texas). For smaller companies, the Model will function on a smaller PC.

Please note that the preferred application software is Microsoft Office Professional for Windows 95 that incorporates Excel 7.0, Access 7.0, and Word for Windows 7.0.¹ Use of this complete suite of Microsoft products will ensure that all file libraries that are needed to run the model will be installed. In addition, Word for Windows 7.0 permits users to examine the Model's documentation in electronic form, and Access 7.0 will permit the user to examine the Model's input data more readily.

Users wishing to run the Model having only a standard version of Excel 7.0 should examine the "Readme.txt" file on the Model's home directory or Section 7 of this documentation for instructions on how to ensure that their computer's installation of supporting file libraries for Excel 7.0 is sufficient to run the model.

¹ Please note that the Hatfield Model Release 3.1 has not been developed and tested to operate under the Microsoft Office 97 suite of applications programs, and may not run successfully in this software environment.

HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

3. Installation Instructions

Hatfield Model Release 3.1 ships as a single self-extracting installation file. In order to install your copy of the Hatfield Model 3.1 please follow these directions.

1. Ensure that your personal computer and its software meets the system requirements described in Section 2.
2. Place the Hatfield Model 3.1 CD-ROM in your PC's CD-ROM drive.
3. Locate and double click on the *File Manager* or *Windows Explorer* icon.
4. Double click on the icon for your computer's CD-ROM drive.
5. Double click on the Hatfield Model Release 3.1 installation icon. The model will run a self-extraction routine that will install the Model and all of its components on your computer's internal hard drive.
6. You are now ready to run the Hatfield Model Release 3.1.

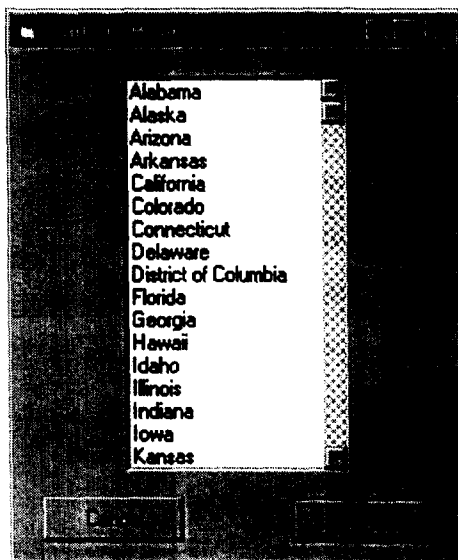
HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

4. Running the Model

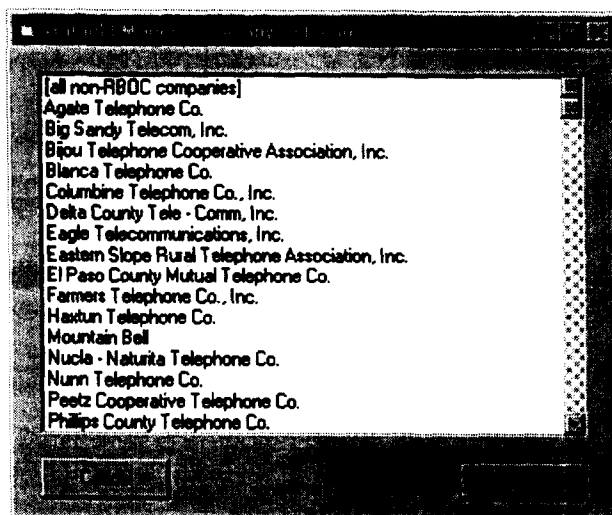
Select State

Running Hatfield Model Release 3.1 is very straightforward. To start the program, click on its icon under the *Programs* entry on the *Start* menu (in Windows 95), or the Hatfield Model program group (in Windows NT 3.51). A copyright message will appear, followed by the State Selection form. From this list, select the state you desire to run:



Select Company

After the State is selected, the Company Selection window will appear. This window will contain the names of all companies in the selected state for which Hatfield Model Release 3.1 contains data. Select the appropriate company from this list.

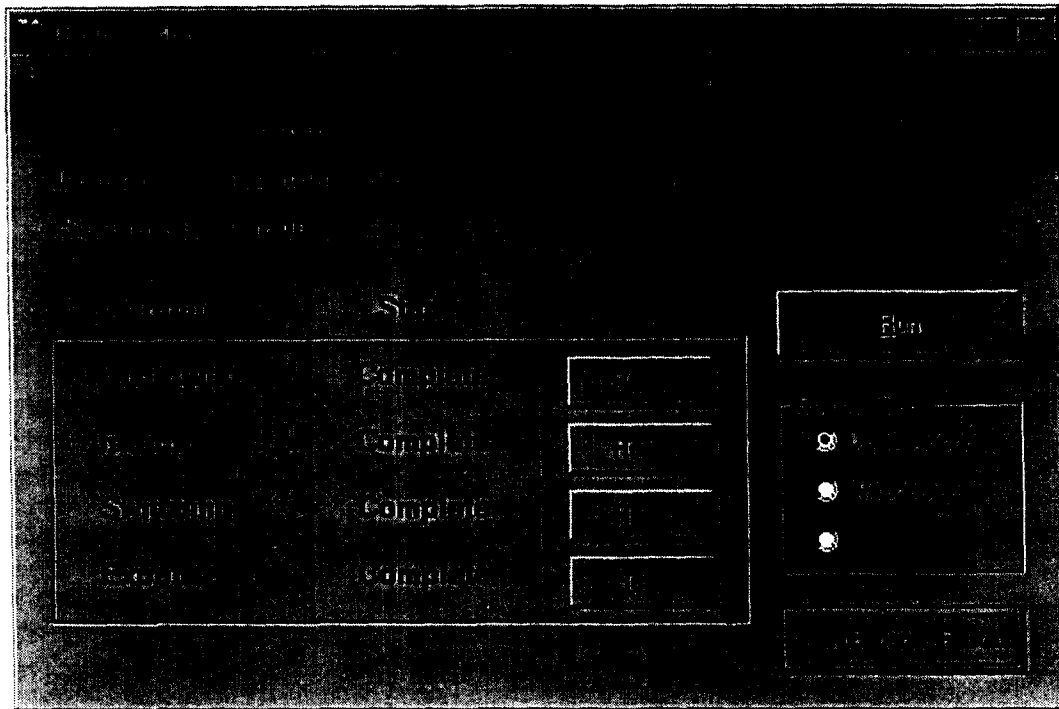


HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

Run the Model

After the desired state and company are selected, the main window will appear.



To run the Model using default user inputs, select either ***Density Zone***, ***Wirecenter***, or ***CBG*** level outputs, by clicking on the appropriate button. Click ***Run***. The Model will automatically calculate its four modules, then output results (in the Expense Module) in Microsoft Excel.

As each of the modules is calculating, a status bar will display the progress of the calculations. As each module completes, the *Status* indicator will change from *Pending* to *Complete* to indicate that it has calculated successfully.

After a particular Company has been run once, subsequent runs will show the module Status as *Complete* for all modules. To re-run the model click the ***Reset*** button next to the module from which you would like to restart the Model. For example, to re-run the Expense Module, click ***Reset*** next to the Expense Module status indicator, and click ***Run***.

Hatfield Model Release 3.1 results can be summarized by *Density Zone*, by *Wire Center*, or by *CBG*. Click on the desired option on the main window before clicking ***Run***. To see all outputs, first run the Model by *Density Zone* and save the results. Next, select either the *Wirecenter* or *CBG* outputs, click ***Reset*** next to the Expense module, and then click ***Run***. The new output will be displayed.

To run the model with customized user inputs, see Section 5.

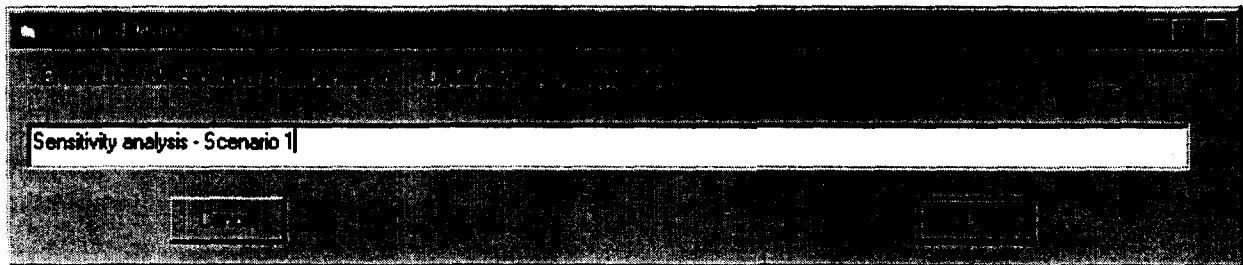
HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

5. Adjusting User Inputs and Managing Scenarios

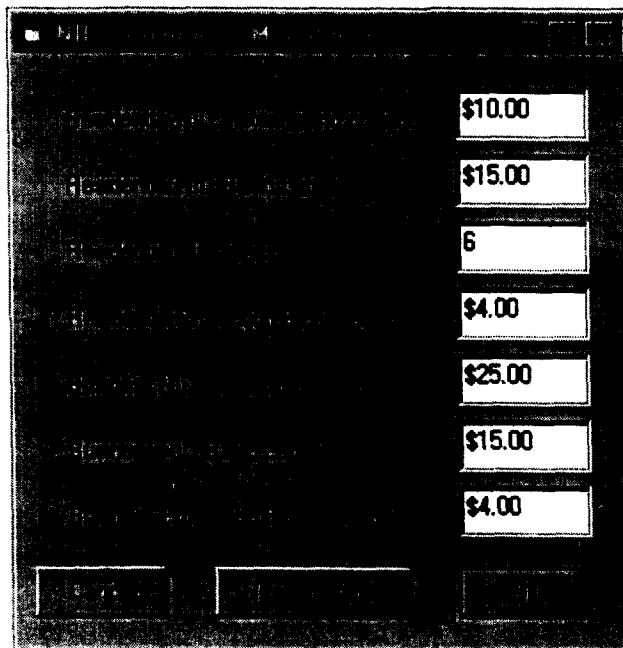
Hatfield Model Release 3.1 has over 600 user adjustable inputs. The Model has input boxes which allow these inputs to be changed easily, and provides a scenario manager to allow users to keep track of various sets of input parameters.

The *Default scenario* in Hatfield Model Release 3.1 cannot be changed, so a new scenario must be created before input values can be changed. To create a new scenario, select **New HM Scenario** from the **HM Tools** menu. The following input box will appear, prompting for a scenario name. The scenario can have any name up to 100 characters long.



A screenshot of a software window titled "Sensitivity analysis - Scenario 1". The window has a dark background with a light-colored text box at the top containing the text "Sensitivity analysis - Scenario 1". Below the text box are two buttons: "OK" on the left and "Cancel" on the right.

To change a user input, click on **HM Inputs**, then select the appropriate category and sub-category of inputs. An input box will appear:



A screenshot of a software window titled "HM Inputs". The window displays a list of inputs on the left and their corresponding values in text boxes on the right. The inputs and values are as follows:

Input Category	Value
Household Income	\$10.00
Household Size	\$15.00
Household Type	6
Household Age	\$4.00
Household Education	\$25.00
Household Employment	\$15.00
Household Unemployment	\$4.00

At the bottom of the window, there are three buttons: "OK", "Cancel", and "Help".

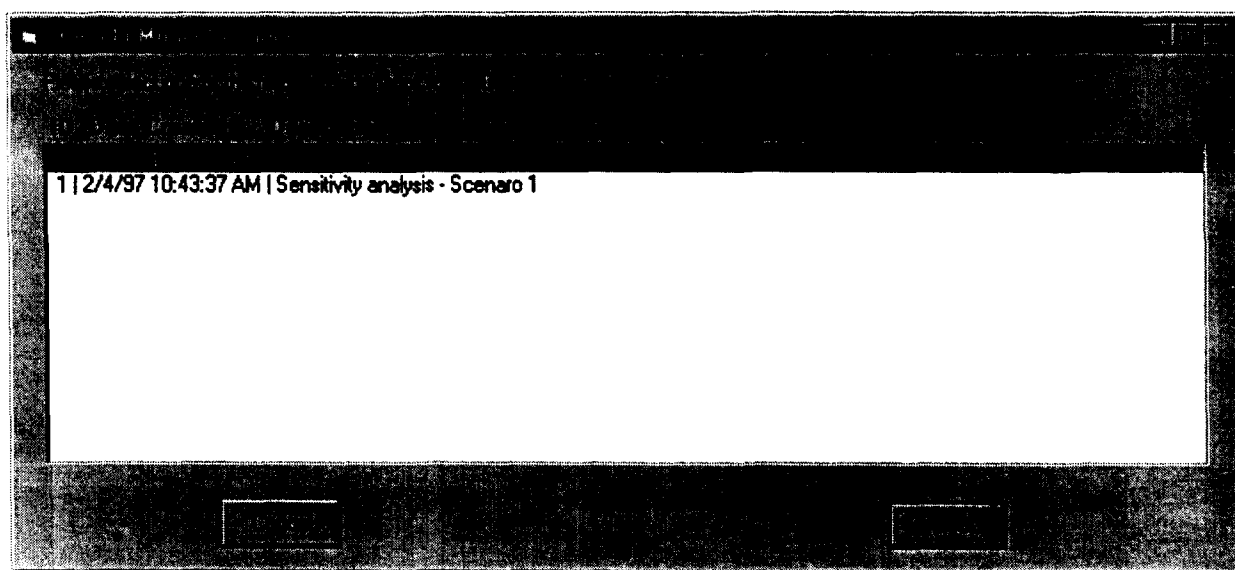
HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

Inputs can be changed by simply typing new values in the spaces provided. Clicking **OK** will register the input change, clicking **Reset Defaults** will return each item to its original value, and clicking **Cancel** will close the input box without registering any changes.

Once a scenario has been created, it can be modified incrementally. After the initial scenario is created, choose **Save HM Scenario As...** from the **HM Tools** menu. An input box will appear, prompting for a new scenario name. Give the scenario a new name. The original scenario will be saved, and further changes can be made to the new scenario under its new name.

To return to a previously created scenario, choose **Open HM Scenario** from the **HM Tools** menu. The following selection box will appear, prompting the user to choose a scenario.



Up to 9,999 different scenarios can be stored in the Model for each company. However, each scenario represents hundreds of input values, so the scenario database could become quite large. Scenarios can be deleted when they are no longer needed by selecting **Delete HM Scenario** from the **HM Tools** menu. A selection box will appear which allows scenarios to be deleted.

HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

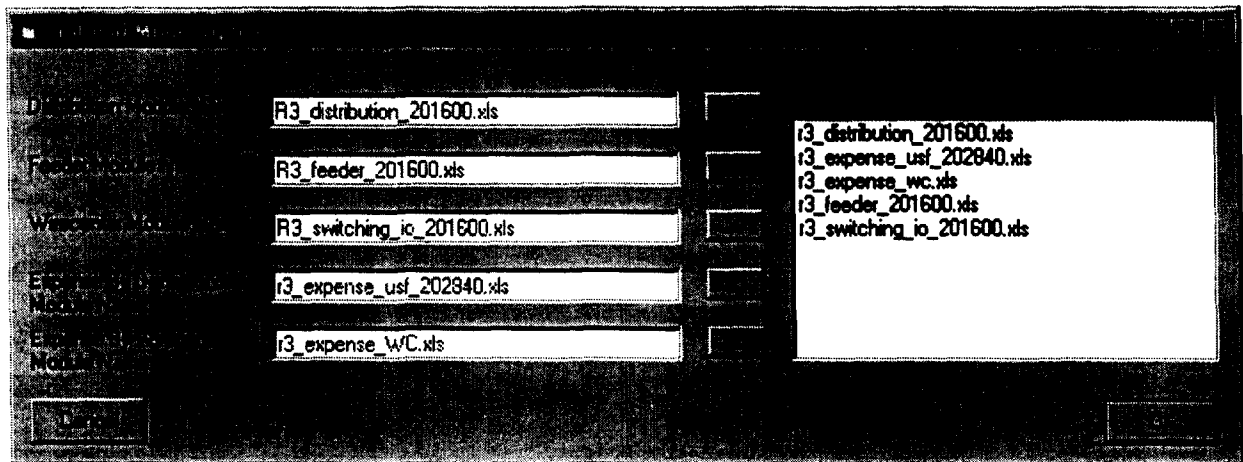
6. Additional Features

Changing Modules

Should it ever become necessary to replace or update the modules that comprise Hatfield Model Release 3.1, the Model provides a mechanism to do so.

First, copy the new modules from the updated CD-ROM or diskette into the Hatfield Model Release 3.1 Modules directory. (The default path will be *c:\program files\hm31\modules* under Windows 95 and *c:\hm31\modules* under Windows NT 3.51.)

Next, select *Options* from the *HM Tools* menu. A selection box will appear which allows the working modules to be substituted. The right side of the selection box will show all the files that reside in the Modules directory. Select the new module from the list on the right, then click the appropriate button to send the module name to the appropriate box on the left. The module names listed on the left side of the form are the calculating modules used by the Model.



Deleting Scenario Workfiles

On certain system configurations, Hatfield Model Release 3.1 can run up against the memory limitations of Microsoft Excel 7.0. This generally happens when running very large companies with completed workfiles (i.e., running Pacific Bell subsequent to its initial run). If an *Out of Memory* error occurs when running a large company, click the *Delete Scenario Workfile* option on the *HM Tools* menu. This will delete the workfile (requiring the run to start from the *Distribution Module*), but should free up the required amount of memory.

HATFIELD MODEL RELEASE 3.1

MODEL INTERFACE AND AUTOMATION DESCRIPTION

7. Troubleshooting

Installation Problems

Hatfield Model Release 3 Workstation Prerequisites

The Hatfield Model Release 3.1 is a Visual Basic application designed to run on a Windows 95, Windows NT 3.51, or Windows NT 4.0 work station and interface with Microsoft Excel Version 7.0. In addition to Excel, the "User Adjustable" inputs and other inputs to the application are maintained in a Microsoft Access database that also resides on the workstation. It is not a requirement to have the MS Access software installed on the workstation, however, certain libraries must be in place for Excel to communicate with the Access database that is installed as part of the Hatfield application.

Excel must be set up to work with MS Access.

This is an optional feature that may not have been selected when Excel was installed. If this feature of Excel was not installed, the Hatfield Model application will not function properly. The most common symptom is the Distribution Module will stall and the status message "Copying Scenario Inputs ..." is displayed on the status bar. Another symptom may be a message something like "Runtime Error '424': Object Required" or another message that complains about "VBA Jet".

The most reliable way to verify that this option is installed is to rerun the Excel Setup Program and check the options listed on the Add/Remove Components form.

Another, slightly less reliable, solution is to verify the existence of a library file called "DAO3032.DLL". This solution is less reliable because the Hatfield Installation process places a copy of this file in the appropriate directory for use by the Visual Basic code. Therefore, depending on when you look for this file, (before or after the Hatfield Model Installation routine) it may be in the correct directory but still not "registered" with Excel. This file will most commonly be installed in the following platform specific directories:

Win 95: C:\Program Files\Common Files\Microsoft Shared\DAO
Win NT3.51: C:\WINNT35\MSAPPS\DAO
Win NT4.0: C:\WINNT\MSAPPS\DAO

To properly install and register this feature the Excel Setup Program must be rerun. When you get to the point where you can Add/Remove Components, Click on the Add/Remove Components button. On the next form select the Converter, Filters, Data Access option. On the next form select the Data Access option. Continue from this point by clicking the appropriate "OK", "Continue", or "Next" buttons to install this option. Once the Data Access option has been installed the errors/symptoms listed above should be resolved.

COST OF NETWORK ELEMENTS

**Alabama
South Central Bell**

Loop elements	0-5 lines/sq mi	5-100 lines/sq mi	100-200 lines/sq mi	200-650 lines/sq mi	650-850 lines/sq mi	850-2550 lines/sq mi	2550-5000 lines/sq mi	5000-10000 lines/sq mi	> 10000 lines/sq mi	Totals
NID										
Annual Cost	\$ 202,569	\$ 2,681,254	\$ 909,959	\$ 2,161,271	\$ 672,621	\$ 4,681,800	\$ 2,257,837	\$ 657,313	\$ 281,838	\$ 14,506,263
Unit Cost/month	0.81	0.70	0.65	0.65	0.64	0.66	0.62	0.55	0.44	0.65
Loop Distribution (DLC)										
Annual Cost	\$ 9,046,196	\$ 93,978,299	\$ 23,274,001	\$ 39,846,165	\$ 8,972,188	\$ 33,465,517	\$ 10,189,061	\$ 1,865,867	\$ 240,524	\$ 220,877,818
Unit Cost/month	36.99	24.58	17.20	13.10	10.02	7.34	5.21	4.49	4.00	13.51
Loop Distribution (non-DLC)										
Annual Cost	\$ 336,705	\$ 257,613	\$ 567,654	\$ 3,067,402	\$ 1,215,773	\$ 16,154,323	\$ 8,189,044	\$ 3,350,469	\$ 2,188,221	\$ 35,327,205
Unit Cost/month	48.63	18.78	15.23	10.03	7.86	6.32	4.87	4.33	3.78	5.78
Loop Distribution (all)										
Annual Cost	\$ 9,382,901	\$ 94,235,912	\$ 23,841,655	\$ 42,913,567	\$ 10,187,961	\$ 49,619,840	\$ 18,378,105	\$ 5,216,336	\$ 2,428,745	\$ 256,205,022
Unit Cost/month	37.32	24.56	17.14	12.82	9.70	6.88	5.05	4.39	3.78	11.41
Loop Concentration (DLC)										
Annual Cost	\$ 1,932,699	\$ 22,698,034	\$ 7,626,481	\$ 15,764,798	\$ 4,500,758	\$ 23,232,532	\$ 9,979,467	\$ 1,970,071	\$ 294,926	\$ 87,999,766
Unit Cost/month	7.90	5.94	5.63	5.18	5.03	5.10	5.10	4.74	4.91	5.38
Loop Concentration (non-DLC)										
Annual Cost	\$ 4,821	\$ 7,901	\$ 7,665	\$ 60,204	\$ 30,298	\$ 410,749	\$ 254,266	\$ 83,311	\$ 54,634	\$ 913,848
Unit Cost/month	0.70	0.58	0.21	0.20	0.20	0.16	0.15	0.11	0.09	0.15
Loop Concentration (all)										
Annual Cost	\$ 1,937,521	\$ 22,705,935	\$ 7,634,146	\$ 15,825,002	\$ 4,531,056	\$ 23,643,281	\$ 10,233,733	\$ 2,053,382	\$ 349,559	\$ 88,913,614
Unit Cost/month	7.71	5.92	5.49	4.73	4.31	3.32	2.61	1.73	0.54	3.96
Loop Feeder (DLC)										
Annual Cost	\$ 5,301,478	\$ 16,756,680	\$ 2,429,757	\$ 4,135,952	\$ 1,110,227	\$ 5,997,103	\$ 2,593,095	\$ 516,804	\$ 105,164	\$ 38,946,260
Unit Cost/month	21.66	4.38	1.80	1.36	1.24	1.32	1.33	1.24	1.75	2.36
Loop Feeder (non-DLC)										
Annual Cost	\$ 560,558	\$ 581,552	\$ 121,196	\$ 1,144,363	\$ 599,339	\$ 8,609,183	\$ 5,559,679	\$ 1,880,870	\$ 1,588,007	\$ 20,624,747
Unit Cost/month	80.96	40.93	3.25	3.74	3.87	3.37	3.30	2.43	2.73	3.37
Loop Feeder (all)										
Annual Cost	\$ 5,862,036	\$ 17,318,232	\$ 2,550,953	\$ 5,280,315	\$ 1,709,566	\$ 14,606,287	\$ 8,152,774	\$ 2,397,674	\$ 1,693,171	\$ 59,571,007
Unit Cost/month	23.31	4.51	1.83	1.58	1.63	2.05	2.24	2.02	2.63	2.66
Total Loop (DLC)										
Annual Cost	\$ 16,477,365	\$ 136,104,680	\$ 34,215,805	\$ 61,710,777	\$ 15,156,722	\$ 65,694,250	\$ 23,975,108	\$ 4,582,256	\$ 666,954	\$ 358,583,917
Unit Cost/month	67.38	35.60	25.28	20.29	16.92	14.42	12.26	11.03	11.10	21.94
Total Loop (non-DLC)										
Annual Cost	\$ 907,661	\$ 836,652	\$ 720,808	\$ 4,469,378	\$ 1,944,483	\$ 26,856,957	\$ 15,047,141	\$ 5,742,449	\$ 4,086,359	\$ 60,611,988
Unit Cost/month	131.10	60.98	19.34	14.62	12.57	10.51	8.94	7.42	7.01	9.91
Total Loop (all)										
Annual Cost	\$ 17,385,026	\$ 136,941,333	\$ 34,936,713	\$ 66,180,155	\$ 17,101,205	\$ 92,551,207	\$ 39,022,249	\$ 10,324,705	\$ 4,753,313	\$ 419,195,906
Unit Cost/month	69.14	35.69	25.12	19.77	16.28	13.01	10.72	8.68	7.40	18.66
Total lines	20,954	319,777	115,896	278,903	87,520	592,758	303,277	99,116	53,553	1,871,754
Total lines served by DLC	20,377	318,634	112,789	253,428	74,629	379,713	183,012	34,608	5,005	1,362,196
	Annual Cost	Units		Unit Cost						
End office switching	\$ 68,324,781									

	Port	20,497,434	1,727,874	switched lines	\$	0.99	per line/month
	Usage	47,827,347	34,367,296,663	minutes	\$	0.0014	per minute
Signalling network elements	\$	5,398,605					
	Links	151,048	678	links	\$	18.53	per link per month
	STP	3,912,436	33,955,825,033	TCAP + ISUP msgs	\$	0.00012	per signalling message
	SCP	1,335,121	1,780,545,000	TCAP queries	\$	0.00075	per query
Transport network elements							
Dedicated							
Sw + Sp Transport	\$	8,183,959	193,347	trunks	\$	3.53	per DS-0 equivalent per month
Switched	\$	2,093,831	49,487	trunks	\$	0.00035	per minute
Special	\$	6,090,128	143,680	trunks	\$		
Transmission Terminal	\$	8,173,601	193,347	trunks	\$	3.52	per DS-0 equivalent per month
					\$	0.00035	per minute
					\$	0.00070	total per minute
Common							
Transport	\$	983,042	1,874,245,234	minutes	\$	0.00053	per minute per leg (orig or term)
Transmission Terminal	\$	499,048	1,874,245,234	minutes	\$	0.00027	per minute
					\$	0.00080	total per minute
Direct							
Transport	\$	5,379,566	9,778,339,577	minutes	\$	0.00055	per minute
Transmission Terminal	\$	2,800,394	9,778,339,577	minutes	\$	0.00029	per minute
					\$	0.00084	total per minute
Tandem switch	\$	2,494,405	1,556,231,153	minutes	\$	0.00180	per minute
Operator systems	\$	11,868,583					
Public Telephones	\$	2,589,202					
Total (w/ Public)	\$	535,891,293					
Total cost of switched network elements (w/o Public)	\$	23.57	per line/month				

Basic Local Service - monthly cost per line

**Alabama
South Central Bell**

	0 - 5 lines/sq mi	5 - 100 lines/sq mi	100 - 200 lines/sq mi	200 - 650 lines/sq mi	650 - 850 lines/sq mi	850 - 2,550 lines/sq mi	2,550 - 5,000 lines/sq mi	5,000 - 10,000 lines/sq mi	> 10,000 lines/sq mi	Weighted Average
Network costs										
Loop	\$ 69.09	\$ 35.66	\$ 25.10	\$ 19.76	\$ 16.27	\$ 13.00	\$ 10.71	\$ 8.67	\$ 7.39	\$ 20.40
Port	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
End office usage	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Signaling	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Transport	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Billing/bill inquiries	\$ 1.43	\$ 1.43	\$ 1.43	\$ 1.43	\$ 1.43	\$ 1.43	\$ 1.43	\$ 1.43	\$ 1.43	\$ 1.43
Directory listing	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
LNP expense (when available)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Total monthly cost per line (assumes LNP available)	\$ 74.28	\$ 40.85	\$ 30.29	\$ 24.95	\$ 21.46	\$ 18.19	\$ 15.90	\$ 13.86	\$ 12.58	\$ 26.69
Total switched lines	20,707	307,520	109,124	259,923	80,992	548,548	272,468	85,356	43,236	wtd by hh 1,727,874
Total households	27,933	340,547	107,825	245,547	73,648	500,575	217,700	52,560	13,616	1,579,951
Total single line business	174	2,097	2,288	2,689	3,832	4,705	6,064	9,499	14,272	45,600
Annual Support @ \$30.00	\$ 14,841,483	\$ 44,334,807	\$ 376,155	0	0	0	0	0	0	\$ 59,552,445

Annual Support Benchmarks at Pre-Selected Monthly Benchmarks (wtd by hh)

\$20.00	\$ 18,193,443	\$ 85,200,447	\$ 13,315,155	\$ 14,578,918	\$ 1,289,793	0	0	0	0	\$ 132,577,756
\$30.00	14,841,483	44,334,807	376,155	0	0	0	0	0	0	59,552,445
\$40.00	11,489,523	3,469,167	0	0	0	0	0	0	0	14,958,690
\$50.00	8,137,563	0	0	0	0	0	0	0	0	8,137,563
\$60.00	4,785,603	0	0	0	0	0	0	0	0	4,785,603
\$70.00	1,433,643	0	0	0	0	0	0	0	0	1,433,643
\$80.00	0	0	0	0	0	0	0	0	0	-

Module release date: 2/5/97

Assumed direct monthly per-line costs:

 billing/bill inquiries \$ 1.22
 directory listing \$ 0.15
 local number portability \$ 0.25